

forty years, addicted to the use of morphine from the age of sixteen, in whom pale, bluish spots, similar to those produced by tattooing with Indian-ink, symmetrically distributed over the thigh, had followed injections of morphine. These spots were rounded or elongated, 2 to 3 millimetres in diameter, with a slight cicatricial depression. Histological examination of the spots showed the presence of black grains of unequal size, insoluble in alcohol, potash, and concentrated acids, and not giving the reaction for iron, and others transparent and refractive, with sharp corners. The first seemed to be particles of carbon, the others, particles of silica.

Eczema Produced by Formalin.—FISHER (*British Journal of Dermatology*, August, 1901), in a clinical note records his experience of the irritating effects of formalin upon the skin. He was accustomed to use this antiseptic in the preparation of museum specimens, more especially in the winter; and during several successive winters he suffered from an eczema of the fingers, which was at first attributed to the frequent wetting of the hands, but was subsequently found to be due to the use of formalin. Others who worked with him were similarly affected. Susceptibility to the irritant effects of formalin seems to be more or less gradually acquired. For a time the hands may be daily dipped into formalin solutions varying in strength from 1 to 5 per cent. without ill effects; then itching and vesicles begin to appear, which result in troublesome eczema if the use of the formalin is not immediately given up. The susceptibility of the skin is much increased after such an attack, mere handling of specimens preserved in formalin being sufficient to cause a return of the eczema.

The Histopathology of Two Cases of Cutaneous Tuberculides, in One of which Tubercle Bacilli were Found.—MACLEOD and ORMSBY (*British Journal of Dermatology*, October, 1901) examined the lesions from two cases of cutaneous tuberculides. These lesions were acne-like, bluish-red nodules, situated in the one case on the extensor aspect of both legs below the knees, in the other upon the forearms, hips, thighs, and legs. The histological appearances found were as follows: In both cases the initial changes appeared to be in the hypoderm, and consisted of proliferative changes in and cellular hyperplasia around the veins in that region. In both the cellular infiltration rapidly encroached upon and replaced the fat tissue, forming cellular areas more or less encapsulated by the remains of the interlobular septa. It is this early cellular infiltration which is to a large extent confined to the hypoderm, which gives rise to the deep-seated nodules which are scarcely visible clinically, but are usually appreciable to the touch. In both the cellular infiltration extended upward along the capillaries, forming foci in the neighborhood of the sweat-coils, hair-follicles, and sebaceous glands, and finally reached the papillary layer. In both the character of the cellular hyperplasia was similar. In the hypoderm it was more markedly tuberculous in appearance in the second than in the first case, but in both the foci in the corium presented equally the characteristic tuberculous architecture. Tubercle bacilli were found in the giant cell in the latter case. A fibrous stroma supporting the cellular hyperplasia was either entirely absent or was represented by œdematous, degenerated collagen and

elastin. In both cases the cellular hyperplasia developed at the expense of the tissue in the neighborhood and finally became necrotic. The papillary and the subpapillary vessels were congested as soon as the infiltration began to encroach upon the corium, accounting for the congested appearance which the nodules presented clinically. The epidermis was only secondarily affected.

The two cases clinically and histologically had certain marked features in common. In the second case there was a dactylitis and a tuberculous family history; tubercle bacilli were found in the lesions of this case. Although no bacilli were found in the lesions from the first case the similarity of the histological appearances left little doubt in the minds of the authors that it was also tuberculous.

[This report is of extreme interest, furnishing indubitable evidence of the tuberculous nature of these lesions.—M. B. H.]

HYGIENE AND PUBLIC HEALTH.

UNDER THE CHARGE OF

CHARLES HARRINGTON, M.D.,

ASSISTANT PROFESSOR OF HYGIENE, HARVARD MEDICAL SCHOOL,

AND

EDWARD F. WILLOUGHBY, M.D.,

OF LONDON.

Influence of Boric Acid and Borax upon the General Metabolism of Children.—Boric acid and borax are much used as food preservatives, and the question of their influence upon the general nutrition of the consumer is one of great interest. The literature on the subject is very voluminous, but the conclusions drawn by the investigators are most conflicting. In order to obtain reliable data upon which to base conclusions, Drs. F. W. TUNNICLIFFE and OTTO ROSENHEIM (*Journal of Hygiene*, April, 1901, p. 168) conducted a series of comparative metabolic observations on the human subject, extending over a considerable period. The observations were made upon three children, who were kept under constant supervision. Their ingesta were accurately weighed and their excreta were collected daily without loss. Both ingesta and excreta were carefully analyzed by the most approved methods. The results of the very numerous analyses are given in detail. The general conclusions arrived at may be summarized as follows: Boric acid in small doses up to 1 gramme per diem, continued for some time, exerts no influence upon proteid or phosphorus metabolism, has no effect upon the assimilation of fat, and exerts no inhibitory effect upon intestinal putrefaction. Body-weight increases. The quantity of dry feces is not affected, but their nitrogen and phosphorus percentage is slightly decreased. Borax in continued doses of 1.5 gramme has no influence upon proteid or phosphorus metabolism, may or may not improve fat assimilation, does not interfere with increase in weight, has no effect upon the weight of dry feces

and their nitrogen and phosphorus percentage, and tends to increase intestinal putrefaction. Both boric acid and borax are quickly eliminated, hence cumulative action is improbable. Neither substance will affect the general health and well-being.

Purification of Water by Sodium Bisulphate.—Tabloids of sodium bisulphate have recently been recommended by Drs. Parkes and Rideal for the treatment of water by armies in the field. Three tabloids are dissolved in each pint of water, and fifteen minutes' contact allowed before drinking. They state that *B. typhosus* is killed by only five minutes' contact with the agent in the proportion of 15.5 grains to the pint, but recommend fifteen minutes to insure sterility. The process has been tested by DR. A. WARNER (*Public Health*, July, 1901, p. 700), who found that a contact of fifteen minutes causes a striking reduction in the number of typhoid bacteria in an infected water, but does not produce sterility. In a majority of cases the bacillus is completely destroyed by a contact of thirty minutes. *B. enteritidis* is as resistant as *B. typhosus*, and *B. coli communis* still more so. *B. cholerae* is destroyed in ten minutes. It has been claimed that the tabloids impart an agreeable acid taste and materially aid in quenching thirst, but Warner asserts that to some the taste is unpleasant and would probably soon become irksome. A soldier drinking five pints of water in a day would swallow over seventy-five grains of the salt, an amount which, Warner suggests, would have the effect of increasing thirst rather than of quenching it.

A New Test for Formaldehyde in Milk.—In the process of estimating nitrogen by the Kjeldahl-Gunning method in a number of samples of milk which had been preserved with formalin, A. G. LUEBERT (*Journal of the American Chemical Society*, September, 1901, p. 682) noticed a peculiar violet coloration of the potassium sulphate crystals and of the sulphuric acid surrounding them. This was especially marked when the milk was added to the potassium sulphate and the acid carefully poured down the side of the digestion flask so that the liquids did not mix, and did not occur with milk which contained none of the preservative. He recommends the following test: Five grammes of coarsely powdered potassium sulphate are placed in a 100 c.c. flask, 5 c.c. of the suspected milk are distributed over it by means of a pipette, and 10 c.c. of sulphuric acid (specific gravity 1.84) carefully poured down the side of the flask. The whole is now allowed to stand quietly until the color develops. If formaldehyde is present, the violet coloration occurs in a few minutes; if none is present, the liquid will at once assume a brown color, rapidly changing to black. The test is said to reveal the presence of one part of formaldehyde in 250,000 of milk.

Notice to Contributors.—All communications intended for insertion in the Original Department of this Journal are received only with the distinct understanding that they are contributed exclusively to this Journal.

Contributions from abroad written in a foreign language, if on examination they are found desirable for this Journal, will be translated at its expense.

Liberal compensation is made for articles used. A limited number of reprints in pamphlet form will, if desired, be furnished to authors in lieu of compensation, provided the request for them be written on the manuscript.

All communications should be addressed to

DR. FRANCIS R. PACKARD, 1831 Chestnut Street, Philadelphia, U. S. A.

THE
AMERICAN JOURNAL
OF THE MEDICAL SCIENCES.

APRIL, 1902.

CASES ILLUSTRATIVE OF THE LOCALIZATION OF THE
MENTAL FACULTIES IN THE LEFT PRE-
FRONTAL LOBE.

BY CHARLES PHELPS, M.D.,
SURGEON TO BELLEVUE AND ST. VINCENT'S HOSPITALS, N. Y.

ATTEMPTS to localize the mind in the human body began almost as early as the recognition of its existence. Theories were successively formulated during many centuries which were wholly speculative and often without a vestige of reason, but which followed a logical sequence and led to rational, though usually mistaken, conclusions. The successive steps in this progressive development of an idea were the separation of the moral from the intellectual faculties; their localization in different organs; their recombination in the brain; the restriction of the mind to a definite seat in some one of the various encephalic regions; and, finally, the assignment of individual mental faculties to separable cerebral areas. The several phases of localization enumerated were not chronologically distinct. During the whole period of from twenty-three to twenty-four centuries as new theories were developed older ones persisted. There could be no settled beliefs because there were no sufficient foundations of fact, and while much of the anatomy of the brain became known, little of its physiology or pathology was discovered.

In the first decade of the nineteenth century a more rational study of cerebral physiology than had been made before was undertaken by Gall, who was also the first to conceive the idea of a methodical plan of cerebral localization. His later work, in collaboration with Spurzheim, which included not only cerebral physiology and anatomy together with craniotomy, but also psychology, profoundly impressed the minds of his contemporaries and immediate successors. His theory of localization, founded upon a comparison of known or assumed individual